

**A Cultural Resources Inventory of 8.13 Acres
for Three Proposed Ditch Siphons Project on the Red River
Community Ditch (Acequia), Colfax County, New Mexico**

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ABSTRACT

On June 29 and 30, 2004, a U.S. Army Corps of Engineers, Albuquerque District, archaeologist conducted an intensive cultural resources inventory of approximately 3.28 hectares (8.13 acres) at a proposed construction and staging area along the Red River Acequia near the community of Maxwell, Colfax County, New Mexico. The survey was conducted in anticipation of construction activities that will include installation of three proposed acequia siphons on three named arroyos/creeks, the Dutch, the Tinaja, and the Loco. The main acequia system has been identified as the "Red River Ditch" and is considered eligible for inclusion to the National Register of Historic Places. Within the ditch/acequia network, there is an existing flume transecting the Tinaja Creek. The flume is a historical conveyance structure of the acequia network system and also is considered eligible for inclusion to the National Register of Historic Places. The proposed project would divert the irrigation water away from the flume and into the underground siphons. The flume will be left in place. No other artifacts or cultural resource manifestations were observed during the survey of the construction or staging areas. The Corps is of the opinion that there would be "No Historic Properties Affected" by the proposed undertaking or on the historic and cultural resources of the region.

INTRODUCTION

The U.S. Army Corps of Engineers, Albuquerque District, in cooperation with the New Mexico State Engineer's Office; the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS, formerly the Soil Conservation Service [SCS]); and the Rio Vermejo Conservancy District is planning a rehabilitation project for the Red River Ditch under the Water Resources Development Act of 1986 (Public Law 99-662; 33 U.S.C. 2201 et. seq.), as amended. The Act authorizes the restoration and rehabilitation of irrigation ditch systems (*acequias*) in New Mexico. Under Section 1113 of the Act, Congress has found that New Mexico's *acequias* date from the eighteenth century and, due to their significance in the settlement and development of the western United States, should be restored and preserved for their cultural and historic values to the region. The Secretary of the Army has been authorized and directed to undertake, without regard to economic analysis, such measures as are necessary to protect and restore New Mexico's *acequias*.

The acequia system serves 7 association members who have croplands that are scattered intermittently downstream of the Canadian River. These ditch association members divert an irrigation water flow from the Canadian River and irrigate a total of 1,800 acres of cropland. The present system conveys irrigation water through existing meandering ditches (winding around arroyos/drainages) and a rundown flume that is unreliable, and inefficient. The flume structure is in poor condition and could fail at anytime. Failure of the flume would leave downstream landowners without irrigation water and would economic threaten their livelihood and that of the small historic agricultural community.

LOCATION AND PROJECT DESCRIPTION

The proposed project area is located near the rural historic community of Maxwell, in south-central Colfax County, New Mexico (Figure 1). Maxwell is about 32 kilometers (km; 20 miles) south of Raton, NM. Raton is located on Interstate Highway 25 approximately 358.8 km (223 miles) north of Albuquerque, the largest city in New Mexico. The proposed project construction sites are located approximately 244 to 609 meters east of the Canadian River in Township 28 North, Range 24 East. The approximate Universal Transverse Mercator (UTMs) coordinates for the proposed siphons and the existing flume can be found in Table 1. The existing flume crosses the Tinaja Creek, a east bank tributary to the Canadian River.

Acequias and ditch irrigation often encounter obstructions such as rivers, creeks, and arroyos. To pass these obstructions, a common method is for a siphon pipe to drop sharply in elevation (underground), then run horizontal under the obstruction (such as a river), and finally rise to the desired elevation. The piping going under the obstruction is traditionally called an "inverted siphon", but since the pipe is not actually acting as a siphon, a better term is "depressed sewer*" (Metcalf and Eddy, 1981).

* this report will use the term "inverted siphons" instead of "depressed sewers."

The proposed project, a Natural Resources Conservation Service (NRCS) design, calls for the diversion of meandering ditches into proposed linear inverted siphons. The present system of conveying irrigation water around (meandering around) natural drainages (i.e., arroyos) by way of ditches is inefficient and requires considerable maintenance and restructuring on eroded ditches after large rain events, such as flash floods. The proposed inverted siphons will move the irrigation water straight across a valley, or in this case arroyos/creeks, and up the other side/bank. The inverted siphons work because there are unequal pressures exerted on the water at the source and at the end of the water pipe, due to different elevations at the beginning and end of the water pipes. The higher the level of water elevation, the more pressure will be exerted. The construction of the siphons will involve installation (subsurfacing) of one or two 27" PVC piping (siphons) and associated elbows, fittings, and manhole boxes, within the arroyos/creeks. The water will be diverted away from the flume and through the siphons.

The proposed construction corridors measures approximately 807.7 meters (2,650 feet) in length by 30.4 meter (100 feet) in width, totaling approximately 24,796.4 square meters (266,809.3 sq. ft.); 2.5 ha (6.1 acres). Three proposed staging areas measuring approximately 30 meters X 30 meters (100 feet X 100 feet) were surveyed. These staging areas totaled approximately .83 hectares (2.06 acres). Access to the community of Maxwell/Tinaja is on existing paved highways and to the construction areas is on dirt roads.

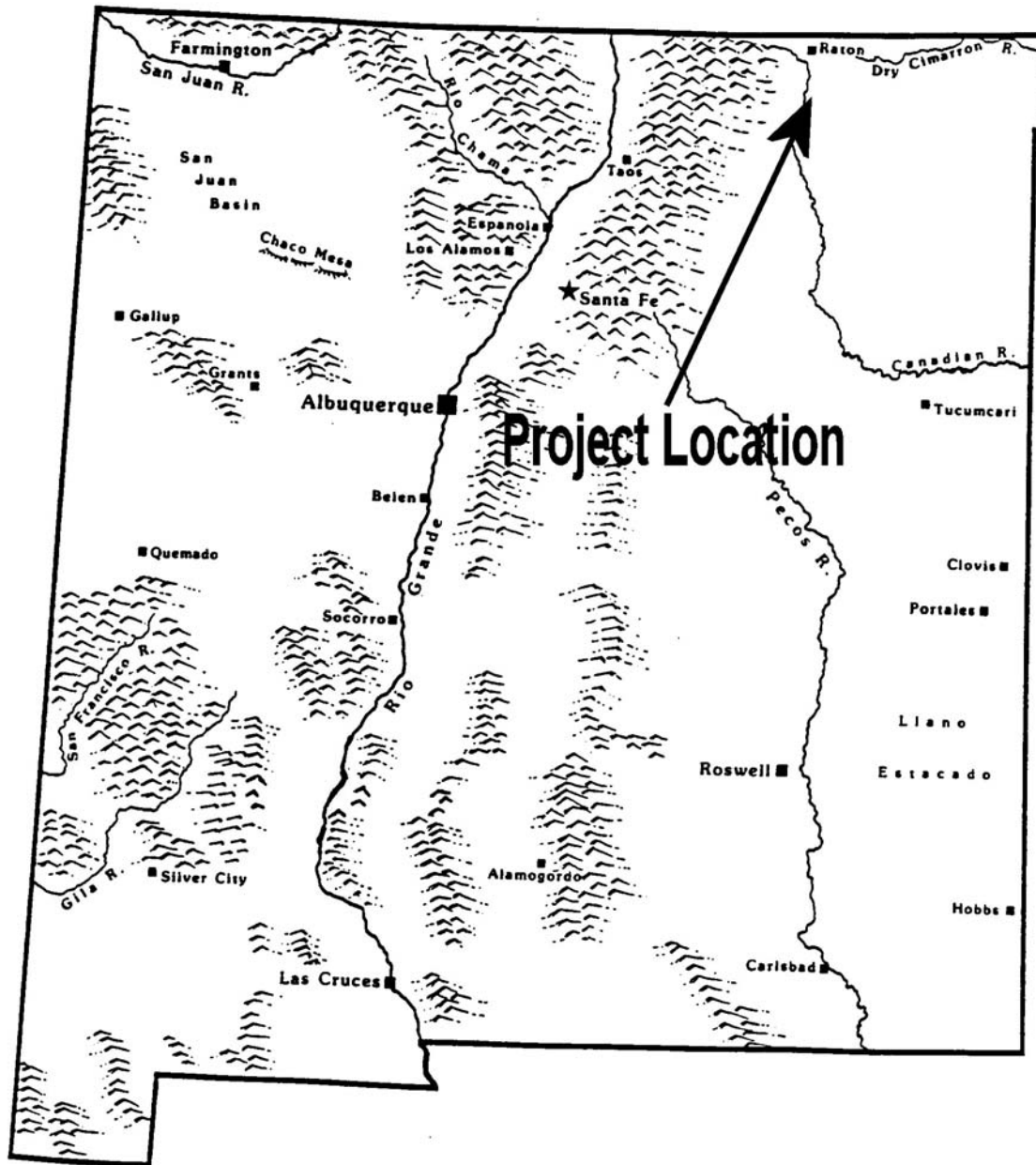


Figure 1: General Area Map: Red River Community Ditch, Proposed Ditch Siphon Project, Near the community of Maxwell, east-central Colfax County, New Mexico (Williams:1986); Not to Scale

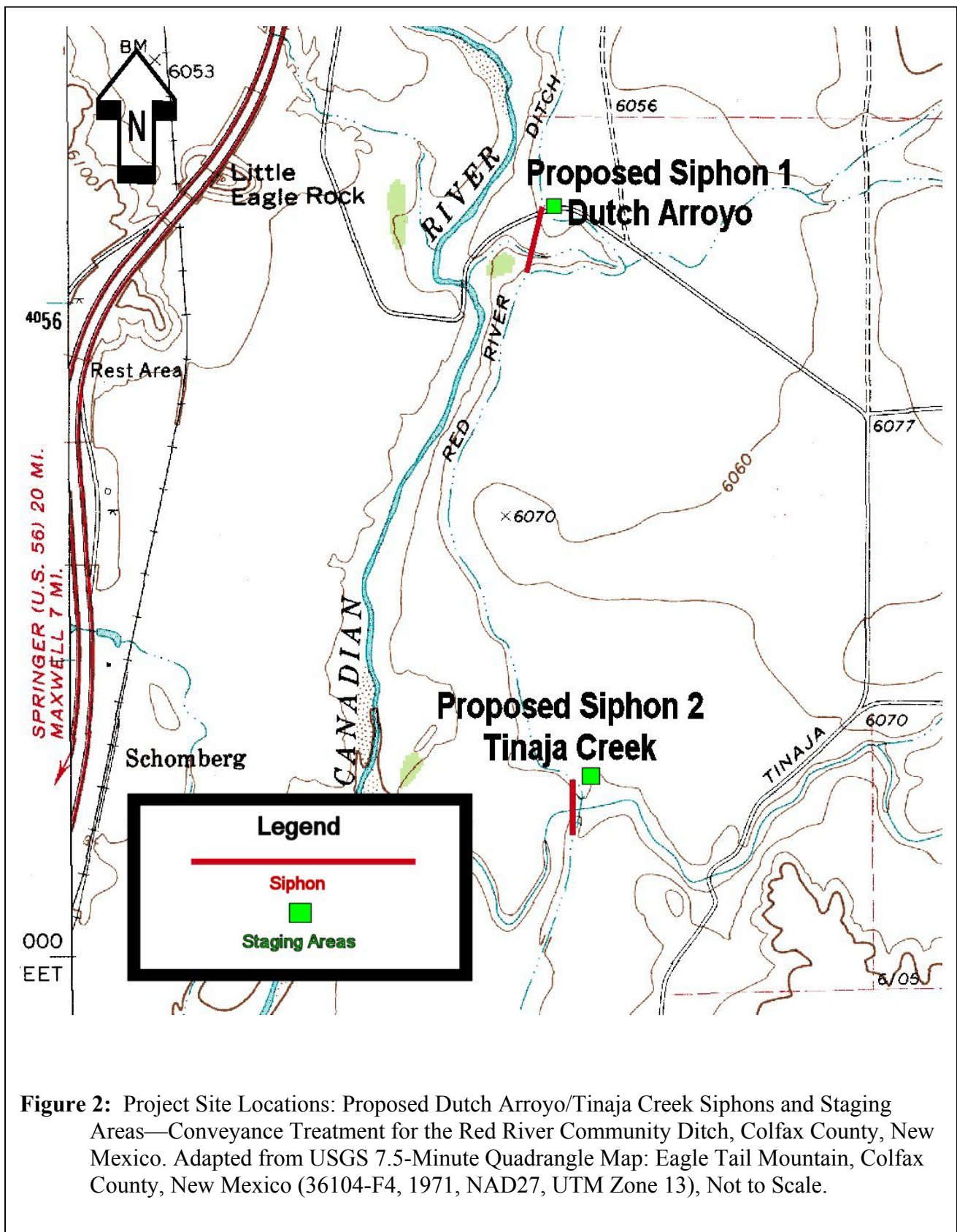


Figure 2: Project Site Locations: Proposed Dutch Arroyo/Tinaja Creek Siphons and Staging Areas—Conveyance Treatment for the Red River Community Ditch, Colfax County, New Mexico. Adapted from USGS 7.5-Minute Quadrangle Map: Eagle Tail Mountain, Colfax County, New Mexico (36104-F4, 1971, NAD27, UTM Zone 13), Not to Scale.

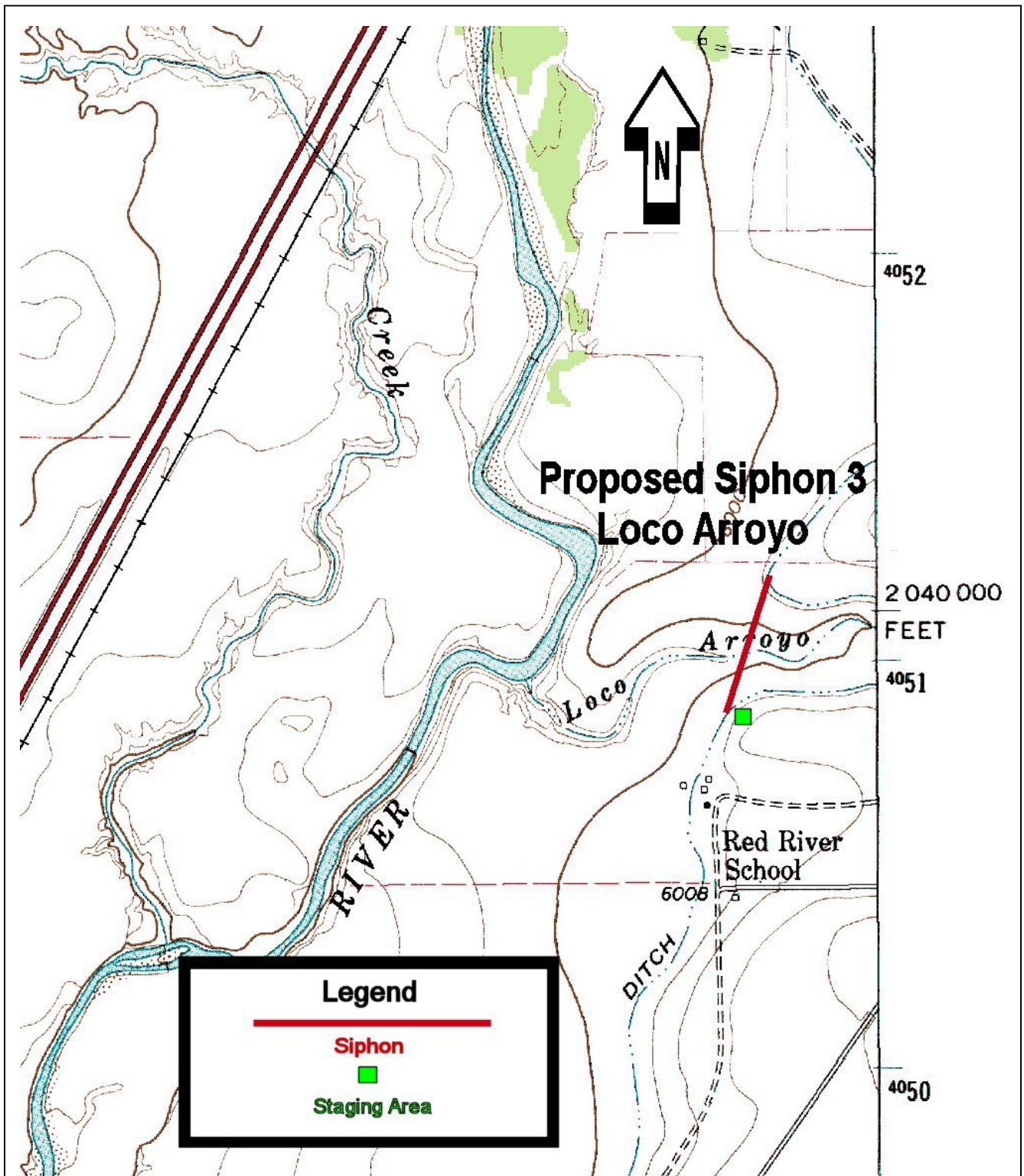


Figure 3: Project Site Location: Proposed Loco Arroyo Siphon and Staging Area—Conveyance Treatment for the Red River Community Ditch, Colfax County, New Mexico. Adapted from USGS 7.5-Minute Quadrangle Map: Maxwell, Colfax County, New Mexico (36104-E5, 1971, NAD27, UTM Zone 13), Not to Scale.



Photo 1. Looking approximately South along the Dutch Arroyo, the Site for the Proposed Siphon 1, Colfax County, New Mexico; Not to Scale.



Photo 2. Looking approximately South along the Tinaja Creek, the Site for the Proposed Siphon 2. The Proposed Centerline is away from the Flume approximately 40 to 50 ft (12-15 m) west, Colfax County, New Mexico; Not to Scale.



Photo 3. Looking South along the Loco Arroyo, the Site for Proposed Siphon 3, Colfax County, New Mexico; Not to Scale

Table 1: Specific Location and Dimension Information for the Project Area(s):

USGS 7.5 Minute Quadrangle Map(s):

Eagle Tail Mountain, NM (36104-F4; 1971, NAD27) and Maxwell,
NM (36104-E5. 1971, NAD27)

Area Description: Maxwell Land Grant

Legal Description: Unplatted; Township 28 North, Range 24 East

UTM Coordinates; Zone 13:

Red River Community Ditch:

Acequia/Ditch Flume, LA 144750 (approx. center) 546130 E, 4054600 N

UTM Coordinates: Zone 13; Beginning of Line (BOL), End of Line (EOL), or Centerpoint

<i>Designations</i>	<i>BOL/EOL/Centerpoint</i>	<i>Easting(NAD27)</i>	<i>Northing (NAD27)</i>
Siphon 1 (Dutch Arroyo)	BOL	544450	4051198
	EOL	544368	4050887
Siphon 2 (Tinaja Creek)	BOL	546109	4054670
	EOL	546114	4054515
Siphon 3 (Loco Arroyo)	BOL	546046	4056265
	EOL	546001	4056095
Three Staging Areas:			
Dutch Arroyo	Centerpoint	546056	4056275
Tinaja Creek	Centerpoint	546153	4054624
Loco Arroyo	Centerpoint	544389	4050876

Proposed Siphon 1 Construction Area:

100 feet wide X 750 feet = 1.72 acres

[30.5 meters X 228 meters = 0.69 hectares]

Proposed Siphon 2 Construction Area:

100 feet wide X 700 feet = 1.60

[30.5 meters X 213.4 meters = 0.65 hectares]

Proposed Siphon 3 Construction Area:

100 feet wide X 1,200 feet = 2.75 acres

[30.5 meters X 365.7 meters = 1.11 hectares]

Three Proposed Staging Areas:

300 X 300 = 2.06 acres

[91.4 meters X 91.4 meters = .83 hectares]

Total Area Surveyed for Cultural Resources: 8.13 acres [3.28 hectares]

The over-night parking area would not be subject to excavation or ground disturbance.

Construction activities would follow all Federal and State laws and regulations and would utilize best management practices. The project is planned for construction in the fall/winter of 2004 with an expected duration of about one month. Since this is a small project and disturbance of the construction and staging areas would be minimal and would occur during a period of vegetal dormancy, the existing grasses and weedy vegetation would most likely re-vegetate themselves. Therefore, the recommended plan does not provide for re-vegetation.

ENVIRONMENT

The project areas are located east of the Vermejo River within the dissected highlands known as southern Raton Basin. This arcuate structural and depositional trough is bounded on the west by the Sangre de Cristo Mountains, on the east by the Apishapa arch in Colorado and by the Sierra Grande Las Animas arch in New Mexico (Johnson and Woods 1956:707). Fenneman (1931:90-91) referred to the section of the basin in the vicinity of the survey area as the Southern Park Plateau.

Exposed along the west escarpment west of Ration and at Vermejo Park, is the late Cretaceous Pierre Shale. This black shale with limestone concretions is approximately 762 m (2,499 ft) thick (Pillmore 1976:229-230).

Overlying and intergrading with the Pierre shale is the Cretaceous Trinidad sandstone, a very fine to medium-grained feldspathic stone, which is exposed above the dark Pierre shale slopes at Vermejo Park and along the field margins. The Trinidad sandstone is locally absent in some areas; its thickness ranges from 0-40 m (0-131 ft) (Pillmore 1976:230). The coal-bearing Vermejo Formation rests conformably on the Trinidad sandstone. This formation, also Cretaceous, is between 0-116 m (0-380 ft) thick, and contains sandstone, siltstone, shale, and beds of coal (Pillmore 1976:230). This formation is visible at Vermejo Park Headquarters where an anticline has been eroded.

The Raton Formation unconformably overlies the Vermejo Formation. The Ration Formation is the thickest and most widely distributed of the coal bearing formations, ranging up to 610 m (2000 ft) in thickness. The survey area is underlain completely by this formation. Late Cretaceous to Paleocene in age, The Raton Formation includes fine-grained sandstones, siltstones, claystones, and coal (Pillmore 1976:229-230).

In some areas near the survey area, Poison Canyon Formation overlies the Raton Formation. This formation contains coarse, very resistant sandstone with interbeds of yellow clayey sandstones. The Poison Canyon sandstone observed maybe 152 m (499 ft) or more thick (Pillmore 1976:229-230).

All of these sandstone formations, but especially the Poison Canyon Formation, form escarpments. In some cases vertical exfoliation has formed rock ledges; in other spalling and Aeolian scouring have resulted in rock shelters of various depths. Some of these are archaeologically significant (Condie et al. 1984:144).

Volcanic intrusives include a large number of sill and dikes. One of these is noteworthy. A Paleo-Pleistocene dike of gray porphyritic basalt outcrops at the mouth of Gachupin Canyon just across the Vermejo from the mouth of the Ancho Canyon (Condie et al. 1984).

Pleistocene pediments and terrace deposits include the previously discussed Adams-Bartlett pediment, pediments at Merrick Lake and Ash Mountain, and the ‘State Line Pediment’ on the Colorado-New Mexico border. Smaller pediments and terraces occur along the Vermejo drainage. The large pediments are stratified; the upper layer consists primarily of rhyolite (Pillmore and Scott 1976:188-120). This rhyolite is from a dike intruded into the Pierre shale; Ash Mountain is the erosional remnant of this formation (Pillmore 1976:118). The smaller pediments and terraces, typically 15 to 18 m (49-59 ft) above the current stream levels, contain basalt, gneiss, quartzite, quartz, and chert. They merge with terrace type gravel deposits of mixed ages derived from erosion of the mountains to the west (Pillmore 1976:116).

As mentioned earlier, alluvium consists of unconsolidated sand, silt, and gravel in modern channels. These are derived from siltstone, igneous, and metamorphic sources (Pillmore 1976:120).

The project area is situated in the Plains Grassland located on high plains, rolling hills, ridges, and flat mesa from 1500 m to 2300 m in elevation. Annual precipitation ranges between 300 mm and 460 mm. The Plains Grasslands is divided in two aspects: tall grass prairie and mixed or short grass prairie. The tall grass prairie of northeastern New Mexico is found on the high mesas such as Johnson Mesa, east of Raton. Characteristic grasses include galleta, needle and thread, bluestem, and dropseed.

The majority of the Plains Grassland is made up of the mixed of short grass prairie composed of numerous sod-forming grass species including grama and buffalograss. Other species are Indian ricegrass, dropseed, prairie Junegrass. Shrubs include winterfat, cholla, snakeweed, rabbitbrush, and sagebrush. Many of these shrubs have expanded their distribution since cattle and sheep grazing began.

Bison and pronghorn are the characteristic large mammal species of the Plains grasslands. Small rodents include prairie dogs, gophers, and ground squirrels. The birds are more like the Plains species than Southwestern species. Snakes are abundant because of the high population of small rodents.

PREVIOUS CULTURAL RESOURCE STUDIES

Cultural resources work in the immediate vicinity of the project area has been limited. A search of the New Mexico Archaeological Records Management Section (ARMS) database found no archaeological sites reported in the vicinity of the proposed construction areas.

On west side of the Canadian River, outside the project area, is a state of New Mexico Registered Site. The Maxwell Irrigation Project (HPD No. 564), was placed on the State Register of Cultural Properties on January 20, 1978. This irrigation project is not associated with Red River Community Ditch.

In Ackerly's research (1996), the Red River Community Ditch was not mentioned or documented. The nearest acequia or ditch documented near the Red River Community Ditch is the Vermejo Conservancy District. According to Ackerly (1996:62) "most irrigation systems in parts of the Rio Vermejo lying to the east in Colfax County were constructed in the later nineteenth century." The geographic description would include the Red River Community Ditch, but was not mentioned in the reference or reference tables.

The Bureau of Reclamation (BOR) acquired the Vermejo Project in 1955 (Ackerly 1996) from the Maxwell Cattle Company. The mainstay of the project is the Vermejo Dam rehabilitated by the BOR at the former site of the Hebron Dam (Ackerly 1996). And the Hebron Dam, originally constructed in 1910 by the Maxwell Land Grant Company, was rehabilitated by the BOR in 1955 and renamed the Vermejo Dam (WPRS 1981:1269). At present, the distribution system consists of 25 miles of main canals, 64 miles of laterals, and 9 miles of drains (WPRS 1981:1269). This project stores water from the Vermejo and Chico Rico rivers and distributes it through a canal system to 7,379 acres of agricultural lands in the Vermejo Basin (WPRS 1981:1269).

Almost all other recent archaeological work in the mid- to upper Pecos River drainage has been linked to Federal cultural resources compliance and management requirements of the National Historic Preservation Act of 1966, the National Environmental Policy Act of 1969, and other Federal and State legislation and regulations. Most of the cultural resources work is related to projects that are associated with State Highway construction and maintenance or projects of the Acequia Rehabilitation Program. Some of the archaeological and historic work with local and regional information is documented in reports such as Ackerly (1996), Gunnerson (1984), and Pillmore (1976).

CULTURAL HISTORY

Within the geographic region of northeastern New Mexico, the first conclusive evidence of early man in North America was uncovered at the now-famous Folsom type site (LA 8121) in the late 1920s. This site produced 19 distinctive Folsom projectile points associated with 23 bison of an extinct subspecies (Wormington 1957:25). Despite this important discovery of early man in northeast New Mexico, the Folsom type site, the San Jon (located immediately south of the study area), and an unreported site near Sapello, New Mexico, are the only excavated PaleoIndian sites in this area (Stuart and Gauthier 1981).

In this PaleoIndian region, two trends were apparent, geography and elevation of PaleoIndian site placement. At high elevation, approximately 7,000 ft., the site bands consist of Clovis, Folsom, Plainview, and Cody artifacts. While the lower elevation band, near 5,000 foot level, consists of Clovis, Folsom, Plainview, Cody, San Jon, Milnesand, and Meserve materials. The Clovis, Folsom, Plainview, and Cody, projectile points are present in both areas, but the San Jon, Milnesand and Meserve projectile points are limited to the areas of lower elevations (Stuart and Gauthier 1981).

Unlike other areas of New Mexico, the Archaic occupation in northeast New Mexico began early and persisted until late. There appears to be considerable overlap of the beginning and ending of the Archaic period with earlier and later horizons. Most archaeologists date the Archaic period from 6000 to 5000 B.C. to A.D. 1000, or for a period lasting nearly 6,000 to 7,000 years. Although this occupation is nearly one-half of the total time that man has been known to have occupied the northeast portion of New Mexico, very few details are known about the period (Stuart and Gauthier 1981: 300).

The distribution of sites attributed to the Archaic and of those sites which contained culturally unidentified lithic scatters were plotted on maps only, and were not fully recorded and documented. These sites were encountered during the late 1950s and early 1960s as part of the Museum of New Mexico's Highway Salvage Archaeology Program, and therefore cluster along the highways. Documentation of these sites generally consists of location only, although a few site forms described the artifacts (Stuart and Gauthier 1981).

The Anasazi occupation in northeast New Mexico is generally believed to have begun around A.D. 1000. This date is based upon ceramic cross-dating, but there is evidence of earlier Anasazi remains in the Cimarron area (Glassow 1980).

In the Cimarron District, Glassow (1980) has documented a long-term occupation by the Anasazi agriculturalists. Occupation began about A.D. 400 and lasted until A.D. 1300. Glassow discusses the shift to agriculture from a hunting and gathering economy, and the relationship between population growth and associated changes in the settlement pattern.

The earliest phase, the Vermejo, A.D. 400 to 700 (radiocarbon dates) is similar to the Basketmaker II occupation found in other parts of the Southwest. No pottery has been found at sites of this period, but evidence of corn is present. Structures representing the Vermejo Phase are simple, above ground, circular houses with horizontally coursed masonry walls erected about one meter high. The superstructure and roof construction at these sites is not known, but postholes are present in the floor of one structure (Glassow 1980:71).

The subsequent phase, the Pedregoso Phase, A.D. 700 to 900, is known from only one definite site in the Cimarron area. This phase is characterized as being similar to the Sambrito Phase in the Navajo Reservoir district, although no undisturbed house structures have been found. Ceramics appear for the first time in this phase in the form of crude, thick, and oxidized sherds (Glassow 1980). Both beans and corn have been recorded for the period (Kirkpatrick and Ford 1977).

The following development period is the Escritores Phase, believed to date from A.D. 900 to 1100 (ceramic cross-dates). Pithouse architecture is reminiscent of the Dennison (Vivian and Clendenen 1965) and Sedillo sites (Skinner 1965) located near Albuquerque. Kiatuthlanna Black-on-white, Red Mesa Black-on-white, and Kana'a Neck-banded pottery are typical at sites of this period (Glassow 1980:73).

The Ponil Phase, A.D. 1100 to 1250 (ceramic cross-dates) is geographically the most

extensive phase in the Cimarron area. Above ground domiciles return during this period, usually as multi-room structures, along with numerous rock shelters (Lutes 1959; Glassow 1980). The pottery associated with sites belonging to the Ponil Phase includes Taos Gray (punctate and incised), Taos Black-on-white, or Kwahe'e Black-on-white (Stuart and Gauthier 1981:306).

The final Pueblo period in the Cimarron area is designated the Cimarron Phase, A.D. 1200 to 1300 (ceramic cross-dates). Larger multi-room pueblos constructed of adobe or masonry accompanied by ceramic assemblages of Cimarron Plain and Santa Fe Black-on-white are indicative of the phase.

The post-Anasazi developments in northeast New Mexico are commonly referred to as the Antelope Creek Focus of the Panhandle Aspect. Contiguous-room pueblos, defined by rows of upright slabs, generally characterize archaeological sites belonging to this phase. It is believed that the Antelope Creek populations relied both on agricultural and bison hunting for subsistence (Krieger 1946; Wendorf 1960). Occupations of this area is generally considered to have occurred from A.D. 1300 to 1450, based upon dated Pueblo tradewares. This culture is better known in the Texas and Oklahoma Panhandle areas, where it was first defined and where most work has been applied to these sites (Campbell 1976:6)

The area just south of Cimarron, New Mexico, was a key locality for a number of Spanish expeditions of the 1600's and 1700's that of which went out onto the Central Plains to explore and make contact with the Indians. Trails across the Sangre de Cristo Mountains from Taos here emerge on the Plains among the settlements of friendly Jicarilla Apaches. Even though the Cimarron area was a jumping off point, trails to the northeast and east, known to Indians who served the Spanish as guides, were never out of sight of distinctive landmarks for several days travel. These trails became well established by the Spanish before 1800s and later became important links between the Rio Grande Valley and the Santa Fe Trail.

The earliest entrada is that of Coronado who left Pecos Pueblo in 1541 (Hammond and Rey 1940; Winship 1896). Wedel (1970) has reviewed the various interpretation of Coronado's route and concluded, convincingly, that the party traveled east and south to the head of the Brazo River, then north to the Great Bend, Kansas area. The return route, which was not well described but was recorded as being much shorter, may well have followed, at least in part, the route of the Santa Fe Trail. It is almost certain that the Indian guide was acquainted with the territory and followed trails known to him.

In 1593, the ill-fated Spanish Humana-Leyba expedition went to the Plains by way of the Pecos; only a Mexican Indian returned (Hammond and Rey 1953). Little is known of this expedition except for the accounts of this Mexican Indian who was captured by Apaches and eventually escaped back to New Mexico.

In 1601, Oñate led a party to the Plains from San Gabriel, situated on the Rio Grande about 30 miles north of Santa Fe (Hammond and Rey 1953). He went out by the way of Galisteo, continuing east to the Canadian River, and followed it, possibly as far east as the Texas-Oklahoma line. Although his route is uncertain, he apparently then traveled north, reaching the Arkansas River in western Kansas. His accounts, too, are rich in information on the

nomadic plains Apaches and the sedentary Wichita (Condie et al. 1984:47)

In the middle of the 1600's, according to Escalante who was writing more than a century later, a Juan de Archuleta, led a party of Spanish to El Quartejejo (in western Kansas) to bring back to New Mexico some Taos Indians who had gone there to live with the Apaches (D. Gunnerson 1974:87-90; Twitchell 1914II:268). It is uncertain which of two Juan de Archuletas made the trip and no contemporary documents exists.

On October 23, 1696, Vargas, with Pueblo Indian auxiliaries, set out from the Picuris Pueblo to retrieve a group of Picuris Indians who had fled towards the Plains three days before (D. Gunnerson 1974:122-124; Thomas 1935:53-58). He crossed the mountains east of Picuris, more or less following the present Highway 3 that goes to Mora, NM.

The best written document, a diary, concerning the travels on the Santa Fe Trail to Kansas, was written by Ulibarri in 1706. He went to El Quartejejo to rescue from the heathen Apaches a group of Christianized Indians, primarily Picuris, who actually had fled there 10 years before to escape Spanish pressure (Condie et al. 1984). Ulibarri, accompanied by Indian guides, followed various sections of the future Santa Fe Trail from Santa Fe to the Arkansas River near the Kansas-Colorado border. From there, he went essentially north and then east to arrive in Scott County, Kansas.

The second diary to be considered is that of Govern Antonio de Valverde. On September 15, 1719, he set out from Santa Fe for the Plains to locate and chastise Utes and Comanches whose raids on the Spanish of New Mexico and on Indians friendly to the Spanish had reached an intolerable level. In Valverde's diary (Thomas 1935:110-133), his directions are good but he apparently underestimated distances traveled by about 10% or he considered the league to be about 3.3 miles as compared to Ulibarri's 3.0 miles.

The Villasur expedition of 1720 may have well changed the history of western United States because this party was nearly destroyed by the Pawnee with French allies (Gunnerson 1974). Villasur's Diary (Thomas 1935:133-137) survived so we can only speculate as to most of his route.

In November of 1723, Bustamante visited the valley of La Jicarilla (near Cimarron, New Mexico) at the request of the Jicarilla who were coming under increased pressure from the Comanche (Thomas 1935:197-199). The Jicarilla requested that they be baptized and given Spanish protection from their enemies. While in La Jicarilla, Bustamante (Thomas 1935:197-199) arrived "on this spot and Rio de Guadalupe, where the valley of La Jicarilla begins" and during the next two days traveled 9 leagues along the valley, meeting with various Jicarilla chiefs.

In the late 1700's and early 1800's Pedro Vial made a number of trips between Santa Fe and the Missouri River although not all of them were completed as planned. Majority of his trips from Santa Fe that went out by the way of Taos and the Cimarron, NM area. By Vial's time, there were no permanent villages of Indians east of the mountains in northeastern New Mexico since the Apaches had been forced out and the nomadic Comanche were then in control

of the area.

The next and last attempt of the Spanish to make contact with the Pawnee, however was successful. In the spring of 1806, Lieutenant Facusndo Malgares, with some 100 individuals, was sent from Mexico to Santa Fe where he added an additional 400 men to his party. They went east from Santa Fe followed the Red River for a ways and then cut northeast to the Arkansas and on to a Pawnee village on the Republican River (Loomis and Nastir 1967:445). Malgares presented the Pawnee with medals and a Spanish flag. A few weeks after Malgares left the Pawnee village, Zebulon Pike arrived, substituted an American flag for the Spanish flag. Pike accidentally crossed over into Spanish territory and was taken to Santa Fe as a prisoner (Jackson 1966). With the advent of the United States' taking New Mexico four decades later, there was an increase in the number of documents relating to the Indians and a greatly increased use of the Santa Fe Trail.

Prehistoric peoples have traveled through, utilized, and occupied sites in the area although no prehistoric occupation is documented in the immediate vicinity of the project area. Eastern New Mexico and possibly the local area was one of the first to be visited by Coronado's 1540 *entrada* to New Mexico.

Following the Mexican-American War, population pressures in New Mexico enticed settlers to move onto the land grants. Although the 1848 Treaty of Guadalupe-Hidalgo between Mexico and the United States guaranteed land ownership to the original claimants and their heirs, decisions made by Congress and the American judicial system created legal complexities, which clouded title (Carrillo et al. 2003:58). In 1891, Congress confirmed most of the grants but reduced the Vigil and St. Vrain Grant. In 1891, Congress created a Court of Private Land Claims to settle outstanding disputes. Many Hispanic landowners were displaced through court settlements or lack of proof of ownership (Carrillo et al. 2003:58).

Of the five land grants, two-- the Nolan Grant and Beaubien and Miranda (Maxwell) Grant—were located on the periphery of the Hispanic Cultural Landscape of the Purgatoire/Apishapa (HCLPA) (Carrillo et al. 2003). In 1841, Gov. Armijo awarded the vast Beaubien and Miranda Grant to Guadalupe Miranda and naturalized citizen Charles or Carlos Beaubien, a French trapper. Beaubien's son-in-law Lucien Maxwell later inherited the holding. The Maxwell Land Grant, the most well-known of the Mexican land grants, once encompassed 1,714,765 acres and was the largest single landholding in the Western Hemisphere (Julyan 1996:223). Most of the grant lay within the boundaries of New Mexico, but an edge pushed north into Colorado south of the Purgatoire River. Sources asserted the claimants falsified the grant by deliberately confusing the well-known landmark of Raton Peak with a more southerly mountain climbed in 1846 by U.S. Captain Waldemar Fisher (Carrillo et al. 2003). Thus during the 1870s, Fisher's Peak, the southern mountains which marked the true boundary of the original grant, became the common name for Raton Peak (Carrillo et al. 2003:58).

The grant, the Maxwell Land Grant, formally called, "Miranda-Beaubien Land Grant," was initially established in 1860 and later patented in 1879 (was classified as Individual Grants), consisted of 1,714,764.94 acres (GAO 2001).

METHODOLOGY AND SURVEY RESULTS

On June 29th and 30th of 2004, a U.S. Army Corps of Engineers, Albuquerque District, archaeologist conducted a cultural resources inventory survey that included the proposed construction area with a construction buffer zone and the proposed staging areas. The three proposed construction corridors measured approximately 807.7 meters (2,650 feet) in length by 30.4 meter (100 feet) in width, totaling approximately 24,796.4 square meters (266,809.3 sq. ft.); 6.12 acres (2.47 ha). Three proposed staging areas, measuring approximately 30 meters X 30 meters (100 feet X 100 feet); 2.01p acres (0.83 hectares), were surveyed (the locations of the proposed staging areas are located on Figures 2 and 3).

The final total of land surveyed for cultural resources is 8.13 acres (3.28 hectares). The approximate measurements of the 3 proposed siphons with the associated arroyos/creeks are listed in Tables 1 and 2.

Table 2. Proposed Siphon Construction Corridors with their Associated Arroyos/Creeks. See Figures 2 and 3.

Designations	Measurements in English	Measurements in Meters	Associated Arroyos/Creeks
Siphon 1	750 ft by 100 ft	228 m by 30.5 m	Dutch Arroyo
Siphon 2	700 ft by 100 ft	213.4 m by 30.5 m	Tinaja Creek
Siphon 3	1,200 ft by 100 ft	365.7 m by 30.5 m	Loco Arroyo

The intensive pedestrian survey was conducted by surveying along parallel transects spaced approximately 3 meters (10 feet) apart. The survey covered 100 percent of the construction and staging areas. Generally, ground surface visibility was about 70 to 90 percent for both the construction and staging areas.

During the survey for the proposed Siphon 2, a flume transecting Tinaja Creek, was recorded (see Figure 2 and Photo 2). Despite the flume's unstable structure, it is currently conveying irrigation water. The proposed Siphon 2 will reroute the current earthen ditch 12-15 meters (40-50 feet) west of the existing flume (see Photo 2 and Figure 2). The inverted siphon will assume control over the irrigated water conveyance from the flume and transfer the water under the creek. The current landowner, Max Mance, stated the earthen ditch and the flume were constructed in the 1920s, and stated that he does have any knowledge of who the previous owner or owners were. He also stated the existing flume is unreliable, inefficient, and failure of the flume structure is eminent. Although the proposed construction of Siphon 2 will divert the irrigated water away from the flume, he will not demolish the flume, rather, he will leave it intact. The ditch and flume is located on property called the TO Ranch. The archaeologist recorded the flume structure through photography and field notes.

The flume is a historical conveyance structure of the ditch/acequia network system and is considered eligible for inclusion to the National Register of Historic Places. The proposed project would divert the irrigation water away from the flume and into the underground siphons.

The ditch flume, currently under consideration, is a structural component of the ditch system and has been given a Laboratory of Anthropology site number of LA 144750 by ARMS. The site form is attached. The flume structure has been previously rebuilt numerous times. No other artifacts or cultural resource manifestations were observed within the survey area.

CONCLUSIONS

During the survey, the archaeologist encountered a historical flume adjacent to proposed Siphon 2. The flume, given a site number of LA 144750 by ARMS, is a conveyance structure of the ditch/acequia network system and is considered eligible for inclusion to the National Register of Historic Places. The proposed project would divert the irrigation water away from the flume and into the underground siphons. The flume will not be dismantled. Outside of the project area is the Maxwell Irrigation Project (HPD No. 564) that was placed on the State Register of Cultural Properties on January 20, 1978. This irrigation project is not associated with Red River Community Ditch.

Based on this information, the Corps is of the opinion that there would be “No Historic Properties Affected” by the proposed undertaking or on the historic and cultural resources of the region. Should previously undiscovered artifacts or cultural features be discovered during construction, work would be stopped in the immediate vicinity of the discovery, a determination of significance made, and if required, a mitigation plan formulated in consultation with the New Mexico State Historic Preservation Officer.

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